

DOUBLE FLOWERS.

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Mr. Bentham, in his introduction to the *Flora Australiensis*, remarks that “*Double Flowers* are in most cases an accidental deformity or monster in which the ordinary number of petals is multiplied by the conversion of stamens, sepals, or even carpels into petals, by the division of ordinary petals, or simply by the addition of supernumerary ones.” Whatever may be the cause of the phenomenon (whether from the influence of cultivation, hybridization through the agency of insects, or atmospheric changes), such flowers are highly esteemed by florists, not merely on account of their size and showiness, but because they produce their flowers annually without any diminution of what is considered their beauty. This arises from the fact that the plants are not weakened by the ripening of seed as in the case of single flowers, which in many species are found to blossom less abundantly every second or third year. Botanists and Horticulturists differ very much in their estimate of double flowers, for whilst the former regard them as “monstrosities” or deviations from their original type, the latter look upon them as ornamental and desirable for cultivation. Whilst, in Europe, the peach, the cherry, and the hawthorn have long been known for the abundance of double flowers which they frequently yield, few double flowers have as yet been found amongst Australian plants, especially in a wild state. *Rubus rosifolius* (Sm. Ic. Pl., t. 60) a species widely spread over the warmer regions of Africa and Asia, is common to Queensland, N. S. Wales, and Victoria, and has long been known for its double or semi-double flowers; but perhaps of all orders in Australia, no one has such a tendency to produce them as the Epacrids. *Epacris purpurascens* (R. Br.) was one of the first found in that state, having been noticed many years since on Elizabeth Farm near Parramatta, and

subsequently by Mr. Statham at the North Rocks. *E. microphylla* (R. Br.) was found double at the North Shore and Manly Beach; and Mr. C. French has collected in Victoria double flowers of *E. impressa* (Latreille), *Sprengelia incarnata* (Sm.) and *Astroloma humifusum* (R. Br.) It seems that the Epacrids have attractions for bees and other insects, and hence the probability that such flowers are peculiarly liable to suffer from hybridization, and that the stamens being deprived of their pollen are left to develop themselves into petals. Next to the Epacrids, some of the Ranunculaceæ seem most subject to deviate from their normal form and to afford instances of multiply and full flowers, but the causes remain yet to be investigated, for such flowers have been found in a wild state on both sides of the Dividing Range. If, as some horticulturists affirm, a moderate supply of moisture, a superabundance of decomposing organic matter, and the greatest possible exposure to sun-light are calculated to promote an extraordinary development of the floral envelopes, it may be conceived that certain species of *Ranunculus*, even in a state of nature, are liable to such contingencies. The species seen most frequently with double flowers is *Ranunculus lappaceus* (Sm.), and very lately Mr. F. Burnell collected in the neighbourhood of Urana some specimens of the small variety *pimpinellifolius* (Benth.), but which some botanists regard as distinct. This elegant little plant is only a few inches in height, and is characterised by spreading hairs, and scapes with a solitary bract. It is very probable that other species of *Ranunculus* may yet be found double, for *R. aconitifolius* (Willd.), *R. illyricus* (Willd.), *R. asiaticus* (Willd.), *R. repens* (Willd.), *R. acris* (Willd.) and *R. palustris* (Dec.)—some of which are nearly allied to Australian species—are well known in Europe for their full flowers, whilst one of them is subject to so many varieties that it has obtained the name of the "florists flower." The genus *Eriostemon*, which is one of the most admired of the Rutaceæ, may also reward the horticulturist with showy flowers under cultivation, for Baron F. von Mueller has already recorded *E. obovalis* (A. Cunn.) which is common to N. S. Wales, Victoria, and Tasmania, as being a very beautiful plant when seen with double flowers in its native

wilds. The flowers of *Boronia pinnata* (Sm.) are liable to variation in size and colour, and appear according to Mr. Beatham to be sexually dimorphous; and therefore it seems probable that they may yet be found with the filaments in a transition state. The Rev. L. P. Atkin, M.A., reports that the native *Convolvulus* (*C. erubescens* (Sims.)) has occasionally double flowers, and the writer of these remarks has found *Wahlenbergia gracilis* (A. Dc.) in a similar condition, which is still more remarkable, as the species soon loses its stamens after flowering. But here again analogy leads to the supposition that such might be the case, especially when species are under cultivation, as the allied genus *Campanula* has several varieties with double flowers. In considering this subject it is evident that much remains to be learned as to the causes of the phenomenon itself, for though it is usually said that it arises from "hybridization aided by cultivation," it is evident from the examples quoted, that in Australia native plants sometimes become double without any cultivation; whilst again it is a fact that some genera are more susceptible of such eccentricity than others. It would be interesting to ascertain how far the introduction of foreign bees into Australia may have contributed to produce double flowers, for, as far as I am aware, none of the early Botanists have made any allusion to them, Sir W. Macarthur having been the first to notice the double *Epacris purpurascens*, and Baron F. von Mueller the first to record the fact respecting that and another species of the same genus (Frag. Phyt. Aust., Vol. VIII., p. 56). Bees are well known to exercise a wonderful influence on cultivated plants, and it is probably due to their carrying the pollen of one kind of flower to another, that, in certain cucurbitaceous species, some of the favourite varieties of former days have died out. Some of the monstrosities and strange appearances in flowers are in point of fact diseases occasioned by the ravages of insects; and *fasciated* branches which result from an abnormal development of the leaf buds, arise from accident or some unknown cause. Amongst cultivated plants *Xylophylla longifolia* (Linn.) and *Celosia cristata* (Willd.) afford instances of this strange growth, and amongst the wild flowers in the neighbourhood of

Sydney *Goodenia heterophylla* (Sm.) has been noticed in the same *fasciated* state. It is clear, therefore, that deviations from their typical character in flowers are not always due to cultivation, and that, in all probability, insects play an important part in the matter. The subject is one of interest to the Florist, and I may add to the Entomologist, for, as the late Mr. W. S. Macleay used to say "the affinities of plants may sometimes be traced by the presence of particular insects"; whilst it may fairly be assumed that the development of double flowers, as the result of hybridization and some other cause, points in a similar direction, viz., the agency of insects. My object in offering these remarks is to direct the attention of collectors to the abnormal growth in flowers, as they are sometimes seen in their native state. Persons engaged in collecting search only for perfect specimens and pass over any that deviate much from their types. These deviations, however, are not devoid of interest, and a greater knowledge of them may lead to a better understanding of the anomalies to which I have referred.